II. AMENDMENTS TO THE CLAIMS:

Claim 1. (currently amended) A test machine ~~adapted~~ to test the wear, wear-preventative and friction characteristics of a power-rotated first test specimen engaging a non-rotated second test specimen, the test machine comprising:

a chuck connected for power rotation of the first test specimen about an axis;

a holder ~~adapted~~ to hold the second test specimen in a position engageable with the first test specimen;

a force actuator connected for positioning the holder along said axis, the actuator being operable to establish a compressive test load between the test specimens;[[,]] ~~and~~

a load sensor connected in the load path that includes the actuator and test specimens to directly measure and provide an output signal indicative of the real-time compressive forces applied thereto during a test[[.]];

an automated control module connected to the load sensor, the load sensor providing an output signal to the control module indicative of the real-time compressive forces applied to the test specimens during the test; and

an input reference module connected to supply a reference load signal to the control module, the control module being operably connected to the diaphragm actuator to adjust the compressive test load established therein according the reference load signal and the real-time output signal from the load sensor.

Claim 2. (original) The test machine of claim 1 in which the load sensor is aligned in said axis between the actuator and the second test specimen for direct detection of the compressive test force therebetween.

Claim 3. (original) The test machine of claim 1 in which the force actuator comprises a pneumatic diaphragm actuator aligned along said axis.

Claim 4. (currently amended) The test machine as defined in claim 1 further comprising ~~at least one of~~ a visual display module to display ~~and an automated control module, the load sensor being connected to said at least one module and providing an output signal thereto indicative of~~ the real-time compressive forces applied to the test specimens during the test.

Claim 5. (canceled)

Claim 6. (original) The test machine as defined in claim 1 further comprising a torque sensor operably connected to the holder and providing an output signal indicative of the frictional torque generated between the test specimens during a test.

Claim 7. (currently amended) The test machine as defined in claim 1 further comprising a linear wear sensor connected to measure the linear movement of the test specimens along said axis during a test.

Claim 8. (currently amended) The test machine as defined in claim 7 [[1]] further comprising a data analysis module connected to the load sensor and linear wear sensor ~~adapted~~ to numerically manipulate the output signals ~~signal~~ therefrom for determining one of a wear, wear-preventative and friction characteristic relationship ~~therewith~~ with the compressive test load.

Claim 9. (withdrawn) A test machine adapted to test wear, wear-preventative and friction characteristics of a power-rotated first test specimen engaging a non-rotated second test specimen, the test machine comprising:

a chuck connected for power rotation of the first test specimen about an axis;

a holder adapted to hold the second test specimen in a position engageable with the first test specimen;

a force actuator connected for positioning the holder along said axis, the actuator being operable to establish a compressive test load between the test specimens, and

a linear wear sensor connected in-line with said axis to measure and provide an output signal indicative of the real-time linear movement of the test specimens during a test.

Claim 10. (withdrawn) The test machine as defined in claim 9 in which the force actuator comprises a pneumatic diaphragm actuator aligned along said axis.

Claim 11. (withdrawn) The test machine as defined in claim 9 in which the wear sensor is connected to said actuator for axial movement therewith and for direct detection of axial movement thereof.

Claim 12. (withdrawn) The test machine as defined in claim 11 in which the wear sensor is aligned along said axis.

Claim 13. (withdrawn) The test machine of claim 9 further comprising a torque sensor operably connected to the holder for sensing the frictional torque generated between the test specimens during a test.

Claim 14. (withdrawn) The test machine as defined in claim 9 further comprising at least one of a visual display module and an automated control module, the wear sensor being connected to said at least one module and providing an output signal thereto indicative of the real-time linear movement of the test specimens during the test.

Claim 15. (withdrawn) The test machine as defined in claim 9 further comprising an input reference module connected to supply a reference wear signal to the control module, the control module being operably connected to the diaphragm actuator and adapted to adjust the compressive test load established therein according to the relationship between the reference wear signal and the output signal from the wear sensor.

Claim 16. (withdrawn) The test machine as defined in claim 9 further comprising a data analysis module connected to the wear sensor and adapted to numerically manipulate the output signal therefrom for determining one of a wear, wear-preventative and friction characteristic relationship therewith.

Claim 17. (currently amended) A test machine ~~adapted~~ to test wear, wear-preventative and friction characteristics of a power-rotated first test specimen engaging a non-rotated second test specimen, the test machine comprising:

a chuck connected for power rotation of the first test specimen about an axis;

a holder linearly movable along said axis ~~adapted~~ to hold the second test specimen in a position engageable with the first test specimen;

a diaphragm actuator aligned with said axis ~~and adapted~~ to develop a linear compressive test load along said axis for applying to the test specimens during a test;[[,]]

an axially movable load-rod extending along said axis and operably engaged ~~connected~~ between the holder and the actuator for transmission of the compressive test load therebetween;[[,]]

a linear bearing element located in-line between the diaphragm actuator and the holder and through which the load-rod extends for low-friction linear guided ~~guidance~~ movement of the load-rod ~~thereof~~ along said axis during a test[[,]];

a low-friction rolling-element thrust bearing rotatably decoupling the holder and the load rod; and

~~at least one of (i) a visual display module operative to display the compressive test load and (ii) an automated control module operably connected to the diaphragm actuator and adapted to adjust the compressive test load, and~~

a load sensor mechanically coupled in-line in the load path between the actuator and the test specimens to directly measure and provide an output signal indicative of the real-time compressive forces applied to the test specimens ~~thereto~~ during a test~~, the load sensor being electrically connected to said at least one module and providing an output signal thereto indicative of the real-time linear movement of the test specimens during the test~~.

Claim 18. (currently amended) The test machine as defined in claim 17 further comprising a linear wear sensor operably coupled in-line with said axis to said diaphragm actuator for direct measurement of linear movement thereof along said axis.

Claim 19. (currently amended) The test machine as defined in claim 17 further comprising a data analysis module connected to the load sensor and linear wear sensor ~~adapted~~ to numerically manipulate the output signals ~~signal~~ therefrom for determining one of a wear, wear-preventative and friction characteristic relationship ~~therewith~~ with the compressive test load.

Claim 20. (new) The test machine as defined in claim 17 further comprising a module with a visually display indicative of the compressive test load during a test.

Claim 21. (new) The test machine as defined in claim 17 further comprising an automatic control module operably connected to the diaphragm actuator and the load sensor for adjusting the compressive test load in response to said signal during a test.

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Claim 22. (new) The test machine as defined in claim 17 further comprising a torque sensor operably connected to the holder and providing an output signal indicative of the frictional torque generated between the test specimens during a test.

Claim 23. (new) The test machine as defined in claim 17 further comprising a temperature control heating element connected to the holder.

Claim 24. (new) A test machine to test the wear, wear-preventative and friction characteristics of a power-rotated first test specimen engaging a non-rotated second test specimen, the test machine comprising:

a chuck connected for power rotation of the first test specimen about an axis;

a holder linearly movable along said axis to hold the second test specimen in a position engageable with the first test specimen;

a pneumatic diaphragm actuator connected in-line with said axis to position the holder along said axis and establish a compressive test load between the test specimens during a test;

a load sensor connected in-line with said axis in the load path between the actuator and the holder to directly measure and provide an output signal indicative of the real-time compressive forces applied to the test specimens during a test; and

a linear wear sensor coupled for linear movement in-line with said axis and with the diaphragm actuator and for direct measurement of linear movement thereof.

Claim 25. (new) The test machine as defined in claim 24 further comprising an automated control module connected to the load sensor and an input reference module connected to supply a reference load signal to the control module, the load sensor providing an output signal to the control module indicative of the real-time compressive forces applied to the test specimens during the test, and the control module being operably connected to the diaphragm actuator to adjust the compressive test load established therein according the reference load signal and the real-time output signal from the load sensor.

Claim 26. (new) The test machine as defined in claim 24 further comprising a torque sensor operably connected to the holder and providing an output signal indicative of the frictional torque generated between the test specimens during a test.

Claim 27. (new) The test machine as defined in claim 26 further comprising a data analysis module connected to the load sensor and the linear wear sensor to numerically manipulate the output signals therefrom for determining one of a wear, wear-preventative and friction characteristic relationship with the compressive test load.

Claim 28. (new) The test machine as defined in claim 24 further comprising a temperature control heating element connected to the holder.